electric/electronic part such as a printing board. The layer of the cured product has a membrane thickness of about 1-200 μm, preferably of 5-100μm.

The printed circuit board of the present invention can be obtained as follows for example:

The resin composition of the present invention in liquid is applied to a printing circuit board by a method such as screen printing, spraying, roll coating, electrostatic coating, and curtain coating to form a membrane of the resin composition having a thickness of 5-160μm. The membrane is dried at 60-110℃, preferably at 60-100℃ to change into a tackiness-free membrane. Then, a photomask having a formed exposure pattern such as a negative film is contacted directly with the membrane (or put on the membrane without a touch), followed by exposing to ultra-violet ray having a strength of 10-2,000mJ/cm^2 to form the latent image.

The non-cured region of membrane that has not been exposed to light is developed with a developer by spraying, vibrational dipping, brushing, scrapping for example. The developer includes a halogenide such as trichloroethane; an aromatic hydrocarbon such as toluene and xylene; an ester such as ethyl acetate and butyl acetate; an ether such as 1,4-dioxane and tetrahydrofuran; a ketone such as methyl ethyl ketone and methyl isopropyl ketone; a glycol derivative such as butyl

cellosolbe acetate, carbitol acetate, diethylene glycol dimethyl ether, and propylene glycol monomethylether acetate; an alicyclic hydrocarbon such as cyclohexanone and cyclohexanol: a petroleum solvent such as petroleum ether and petroleum naphtha; water; an aqueous solution of alkali such as potassium hydroxide, sodium hydroxide, sodium carbonate, potassium carbonate, sodium phosphate, sodium silicate, ammonia and amines.

Then, the membrane may be irradiated by ultra-violet ray from a low-pressure mercury lamp, a medium-pressure mercury lamp, a high-pressure mercury lamp, an ultrahigh-pressure lamp, a xenon lamp, a metal halide lamp, and an ultra-violet ray emitting laser to cure further if necessary. The membrane is then heated at a temperature of 100-200℃, preferably of 140-180℃ to obtain the printed circuit board having a permanent protective membrane that is excellent in flexibility and is satisfying in property such as heat resistance, solvent resistance, acid resistance, adhesive property, and electrical properties.

A photoresist image can be prepared by using the photosensitive film of the present invention as follows:

The above protective film, if laminated, is beforehand removed. The photosensitive layer can be laminated on a substrate board by press-adhering under heating. The lamination

is preferably carried out under reduced pressure. The surface to laminate on is preferably, though not limited to, a FPC on which a circuit is able to form by etching for example. The temperature for heating the photosensitive layer is preferably, though not limited to, 90-130℃. The pressure for adhering is not limited and the adhering is preferably carried out under a reduced pressure.

The photosensitive layer laminated by the method mentioned above can be exposed to light and developed, followed by photosetting and thermosetting if necessary, to obtain the printed circuit board having a permanent protective membrane that is excellent in flexibility and is satisfying in property such as heat resistance, solvent resistance, acid resistance, adhesive property, and electrical properties.

Example

The present invention will be described in more details by way of, though not limited to, the below examples. "part" means "part by mass", unless otherwise stated.

Synthesis examples of urethane (meth)acrylate (A)

Synthesis example 1

1,740g of polytetramethylene glycol (hydroxyl value:129mgKOH/g, M.W.:870), 218.8g of pyromellitic acid